

16. ON THE IDENTIFICATION OF *LYCODON FLAVOMACULATUS* WALL 1907

(With two plates)

Lycodon flavomaculatus Wall, 1907 has been a frequently misidentified species for much of its recorded history. This note provides a brief account of this history and comments on taxonomic characters of both live as well as preserved specimens. Although gross scalation character is similar in most respects to that of its other Indian congeners, its dorsal pattern is visually distinct except possibly from *L. striatus* and *L. fasciatus*. This note is intended to aid in the identification of this species.

Lycodon flavomaculatus is rare and of limited distribution (Wall, 1907; Smith, 1943; Murthy, 1991; Murthy *et al.*, 1993). It was initially reported only from Maharashtra (Sangli, Kirkee, Poona, Nasik) and Karnataka (Dharwar). Smith (1943) recorded Deolali, Oudi and Berar (Buldana), all in Maharashtra, as additional localities. The Bombay Natural History Society Collection has a specimen from Bombay (S. 1109, Coll. F. Wall, 31.xii.1907) and another from Talegaon (S. 1114, Coll. A.G. Chaphekar, 27.iv.1956). Khaire and Khaire (1985) collected four specimens from Pimpri (near Pune, Maharashtra). The last record of *L. flavomaculatus* was from the Nilgiri Biosphere Reserve in Tamil Nadu (Murthy, 1991). There appear to be no other records of the species.

This species has been misidentified for much of its recorded history (Wall, 1907; pers. obs.). At first Boulenger (Wall, 1907) considered *L. flavomaculatus* to be a variety of *L. aulicus*, while Wall (1907) thought it was a colour variety of *L. jara*. After comparing a specimen from Dharwar with several specimens of *L. jara* and *L. aulicus* in the British Museum, Wall convinced Boulenger that *L. flavomaculatus* was a distinct species. He attributed their errors in identification to Boulenger's key to the genus *Lycodon* (Wall, 1907). This key was formulated prior to *L.*

flavomaculatus being recognised as a valid species. Recently herpetologists have mistaken live *L. flavomaculatus* from Maharashtra and/or photographs of this species for *L. fasciatus*, *L. striatus* and (yet again) *L. jara* (all pers. obs.). These errors may well have been caused by identifications based largely or solely on descriptions of colour and body patterns. All these snakes are a shade of brown or black with yellow or yellowish markings that could be interpreted as "yellow-spotted". While *L. striatus* is sympatric with *L. flavomaculatus* in certain areas of its range, *L. fasciatus* is not. In India, *L. fasciatus* appears to be confined to the Eastern Himalayas (Assam and probably the other northeastern states). As this species does not occur in Maharashtra and southern India, *Lycodon* that have been found in this region should not be mistaken for *fasciatus*. *L. jara*, however, has a wider distribution. It has been reliably reported by knowledgeable herpetologists from Dehra Dun (S. Mukherjee, pers. comm.); Ganjam (now in Orissa); the eastern Himalayas as far west as 85° long., Bengal; Assam (all Smith, 1943) and Itanagar, Arunachal Pradesh (Captain, unpubl. obs.). Even though Wall (1923) noted that Beddome's locality records for specimens of *jara* in the British Museum labelled "Malabar" and "Anamallays" were to be discredited, there exists a small but distinct possibility of *jara* occurring further south of Ganjam — its southernmost recorded limit. Even if one were to disregard this possibility, Ganjam (Orissa) is further south than Berar (Buldana, Maharashtra) which is the northernmost record for *flavomaculatus*. This makes the southern limit of its range possibly sympatric with that of *flavomaculatus*.

However, *L. jara* is strikingly different in appearance from *flavomaculatus*. The brownish/

purplish-black dorsum of *jara* is "uniformly stippled with white (yellow in life), this pattern is formed by small spots or short longitudinal lines, two on each scale" (Smith, 1943, Captain unpubl. obs.). Most of the dorsal scales are distinctly "twin-spotted". In contrast, *flavomaculatus* has a black dorsum with a series of small yellow vertebral spots, opposite which bars of the same colour descend and broaden to form a reticulation on the flanks (Smith, 1943, Captain, unpubl. obs.). This gives *flavomaculatus* a distinctly barred appearance (Plate 2, Fig. 3) *Lycodon jara* can thus be easily distinguished from it. The only other species which may be "acceptably mistaken" for *L. flavomaculatus* is *L. striatus*.

While keying out a live *L. flavomaculatus* specimen, the author noticed a discrepancy between Wall's (1907) original description and that provided by Smith (1943). This may have resulted in much of the present day confusion. The etymology of this species suggests that it has yellow spots (*flavus* (L) = yellow / golden; *maculatus* (L) = spotted). Wall (1907), who actually saw live *flavomaculatus*, described the pattern as "buttercup yellow roundish vertebral spots, opposite which whitish bars descend..." and went on to note that "the living specimen after being put into spirit lost its brilliant yellow in about three days, the spots being then as white as the flank bars...". Smith's (1943) key to the species of *Lycodon* (p. 257) almost certainly referred to preserved material, "...back with a series of small white vertebral spots.... *flavomaculatus*...". In his description of *L. flavomaculatus*, Smith (1943) concurred partly with Wall (1907). Contradicting his own key on page 257 (and quoted in part earlier), Smith (1943) described the body pattern as "... a series of small roundish or triangular, yellow, vertebral spots, opposite which bars of the same colour descend and broaden to form a reticulation on the flanks." (p. 262). Thus Smith's (1943) key, if used in isolation on live *L. flavomaculatus*

specimens, would almost certainly mislead the user. However, the same key would work perfectly on preserved snakes! This part of the key should read "...back with a series of small white (yellow in life) vertebral spots.... *flavomaculatus*...". Two live *flavomaculatus* from Pune (=Poona) dist. in Maharashtra were examined by me. Both had yellow vertebral spots, opposite which bars of the same colour descended to form reticulations on the sides of the body. One or two flecks (closest to the ventrals) were often white.

Both Wall (1907) and Smith (1943) have separated *Lycodon flavomaculatus* and *L. striatus* on the basis of their supralabials (*flavomaculatus* - 9; *striatus* - 8). This condition was found to be valid in all the specimens examined by me (Plate 1, Figs. 1 and 2). Wall (1907) also noted that, while in *L. flavomaculatus* only one supralabial touches the nasal, two supralabials touch the nasal in *L. striatus*. Smith (1943) did not comment on this condition. Eleven *flavomaculatus* and 32 *striatus* specimens examined to test the veracity of Wall's (1907) claim. All the *flavomaculatus* specimens had only the first supralabial touching the nasal (Plate 1, Fig. 1). Only 18 (56.25%) of the *striatus* specimens examined had both the first and second supralabials in contact with the nasal. Contrary to Wall's (1907) claim, the other 14 *striatus* 43.75% (Plate 1, Fig. 2) had a single supralabial touching the nasal. Three of the *striatus* specimens examined were collected by Frank Wall. They are housed in the Bombay Natural History Society Collection. One (S. 1093) had only the first labial in contact with the nasal; while S. 1094 and S. 1095 had both the first and second supralabials touching the nasal. Evidently, this is not a stable taxonomic character that can be used to separate the two species.

In order to aid identification, photographs of the lateral view of the head and the dorsal aspect of the body of live *L. flavomaculatus* and *L. striatus* have been included (Plate 1, Figs. 1-2; Plate 2, Figs. 3-4). The nine preserved



Fig. 1: Lateral view of head of *Lycodon flavomaculatus* Wall 1907, showing supralabials.

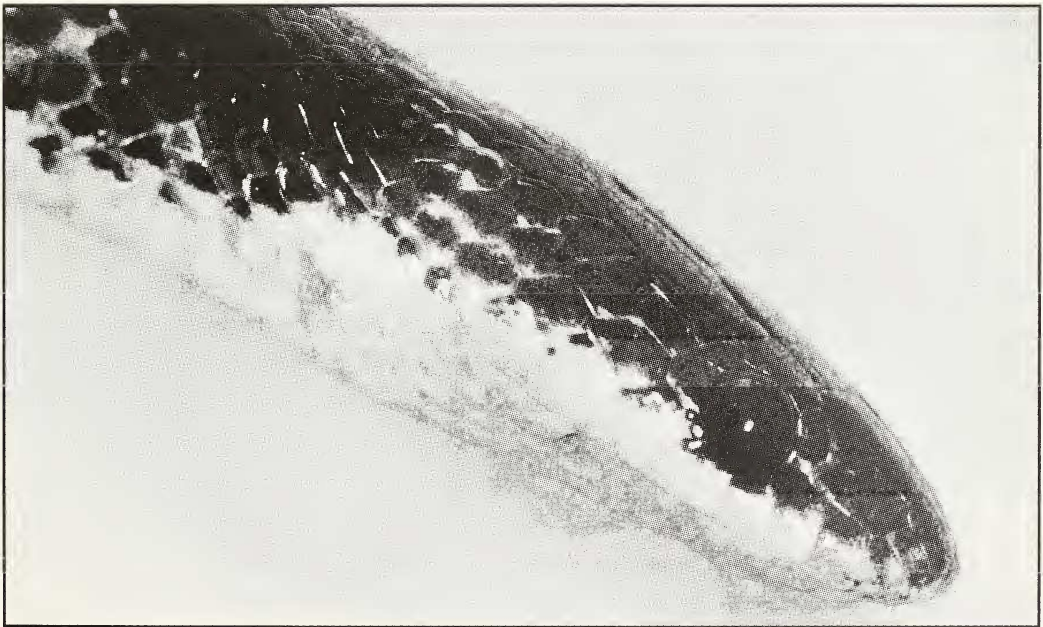


Fig. 2: Lateral view of head of *Lycodon striatus* (Shaw 1802), showing supralabials



Fig. 3: Dorsal view of *Lycodon flavomaculatus* Wall 1907.

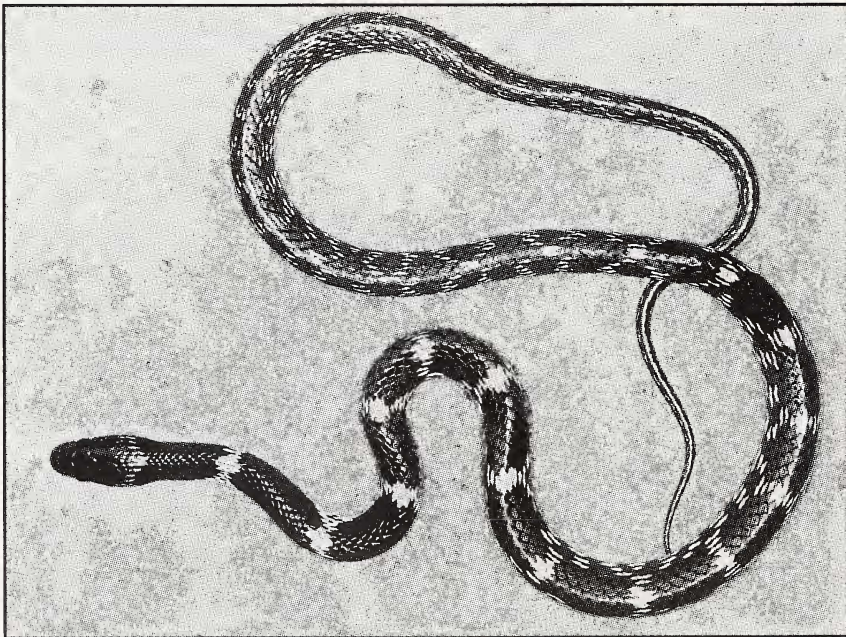


Fig. 4: Dorsal view of *Lycodon striatus* (Shaw 1802).

flavomaculatus specimens that were examined have a dorsal body pattern similar to that of the live snake in the photograph. Scalation of the photographed *flavomaculatus* is given in Table 1 as some counts were marginally outside the ranges recorded by Smith (1943).

TABLE 1
DATA ON MEASUREMENTS (IN MM) AND
SCALATION OF *LYCODON FLAVOMACULATUS* WALL
1907, FROM TALEGAON, MAHARASHTRA, INDIA
RECORDED ON JUNE 15, 1998

Scales (smooth):	17:17:15
Ventrals (not angulate laterally):	165
Subcaudals:	61
Supralabials	
(scales touching eye in brackets):	9(3-5)
Infralabials:	10
Loreal:	1
Preocular (touches prefrontal):	1
Postoculars:	2
Temporals:	2+3
Snout - vent length:	345
Tail:	95

In conclusion, distribution, if known, and dorsal pattern can be used to rule out two species of *Lycodon* that have been mistaken for *L. flavomaculatus*. Live *flavomaculatus* and *striatus* can be distinguished externally, by coloration and

the difference in the number of their supralabials (*flavomaculatus* - 9; *striatus* - 8). However, having seen several kinds of supralabial aberrations in *Amphiesma stolatum*, *Argyrogena fasciolatus*, *Boiga* sp. and *Calliophis maclellandi* (Captain, unpubl. obs.) it would be reassuring to have conclusive proof that the two species are reproductively isolated.

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